Extreme Networks Summit WM-Series Wireless Controller and Altitude 350-2 APs Configuration and Deployment Guide

SpectraLink's Voice Interoperability for Enterprise Wireless (VIEW) Certification Program is designed to ensure interoperability and high performance between NetLink Wireless Telephones and WLAN infrastructure products. The products listed below have been thoroughly tested in SpectraLink's lab and have passed VIEW Certification. This document details how to configure Summit WM100 and WM1000 Wireless Controllers and Altitude 350-2 access points (APs) (models 15939 & 15938) with NetLink Wireless Telephones.

Certified Product Summary

Manufacturer:	Extreme Networks http://www.extremenetworks.com/solutions/applications/wireless.asp	
Approved products:	Wireless Controllers	Access Points
	WM 100 WM 1000	Altitude 350-2
RF technology:	802.11b/g	
Radio:	2.4 – 2.484 GHz	
Security:	WPA-PSK, WPA2-PSK	
AP firmware version tested:	1.1.4.03.03	
NetLink Wireless Telephone software version tested:	SRP Version 2.0 (89.124)	
Maximum telephone calls per AP:	10	
Recommended network topology:	Switched Ethernet (recommended)	

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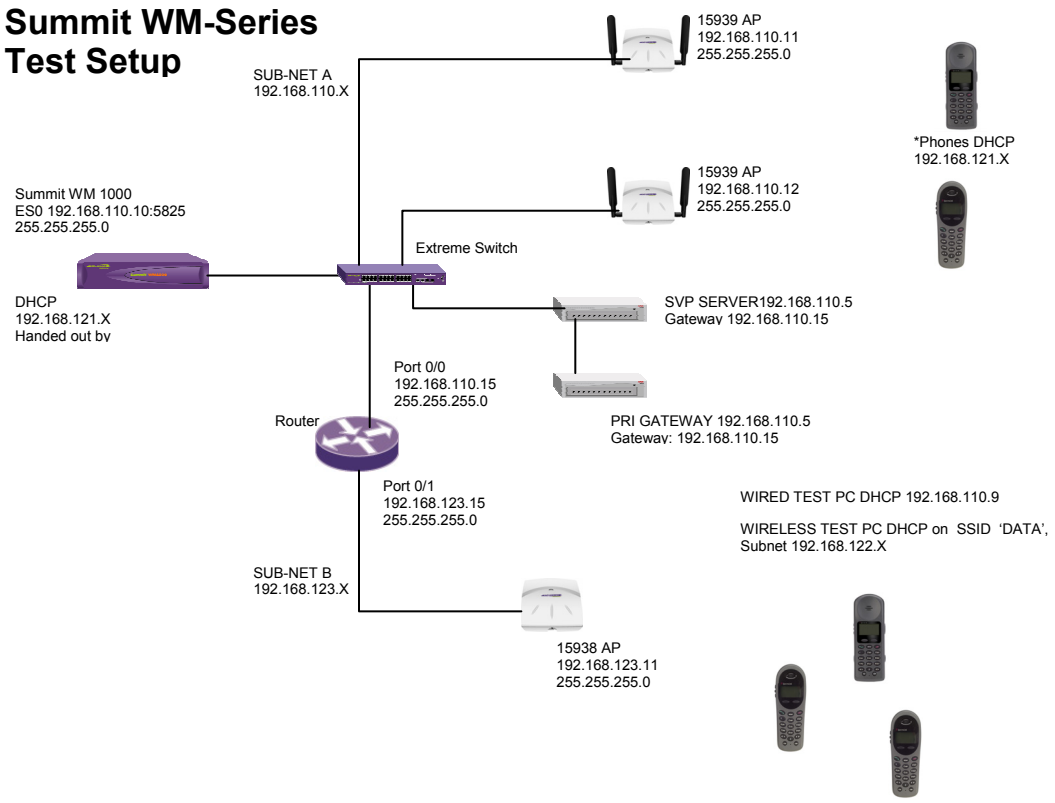
Network Topology

The following topology was tested during VIEW Certification. It is important to note that these do not necessarily represent all "certified" configurations. The access points were powered through a mid-span POE adaptor.



* Phones DHCP 192.168.121.X

*All Clients are on their own "Virtual Subnet", Per SSID

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Product Limitations

1. Beacons are sent from the AP inconsistently; therefore you may see decreased battery life on the handsets.
2. A hex-key is not supported with both WPA-PSK and WPA2-PSK. You must use a passphrase for each.
3. Because the Controller configures a virtual subnet, broadcast data cannot be sent to the handsets.

Installing Software & Configuration

1. If software upgrades are required, contact Extreme Networks Customer Support for the latest version of software and instructions.
2. The current version of software installed can be found by opening a telnet session of the AP, and typing the command 'version', or by looking at the configuration GUI under Wireless APs then selecting the general tab for the AP in the field 's/w version'.

If you encounter difficulties or have questions regarding the configuration process, please contact your Extreme Networks representative or visit the web site http://www.extremenetworks.com/solutions/applications/wireless.asp.

Initial Setup

1. The following instructions are for configuring a wireless controller and a number of access points with no prior configuration.
2. All of the initial setup is done via a web interface. Connect a 'Cross-Over' Ethernet cable directly from the Management Port of the controller to a PC's Ethernet port.
3. Log onto the controller by opening a web browser and connect to https://192.168.10.1:5825/. The default username is 'admin'; the default password is 'abc123'.
4. Do this step only if it is necessary to reset the controller back to its factory default configuration. Browse to **WM-AD Configuration** and select **System Maintenance** screen. Select **Reset database to factory default and reboot** and click **Apply**. This will reset the database and cause the controller to reboot. It will take three to four minutes before the controller is finished.

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Controller Setup

The setup steps described below refer to the network topology diagram shown in this document. Make sure all the access points are disconnected from the system if configuring the system for the first time.

Assigning an IP Address to a Wireless Controller

1. Log onto the controller by opening a web browser and connect to https://192.168.10.1:5825/. The default username is 'admin'; the default password is 'abc123'.
2. Navigate to **Summit™ Switch** and select **IP Addresses** from the left hand side of the screen.
3. Change the value of **esa0** to **192.168.110.10** and **255.255.255.0** for the **IP Address** and **Subnet mask**. Click the checkbox for **Mgmt** and **SLP** for this port only (thus turning it on). Leave them unchecked (off) for the other ports. For **Function**, select **Host Port** if static routing is used. Otherwise, select **Dynamic Port** if **OSPF** is being used for routing and routing advertisements. Enter **esa0** for **Multicast Support**. Refer to the screen shot shown below.

This is for topologies where the SpectraLink gateway(s) and SVP Servers are located adjacent to the esa0 port, as was done in this certification test. In topologies where the setup is different this multicast setting should be configured to be whichever port the SpectraLink servers are adjacent to. This setting permits proper wired replication of multicast data from the wireless subnet.

4. Save the settings using the **Save** button.

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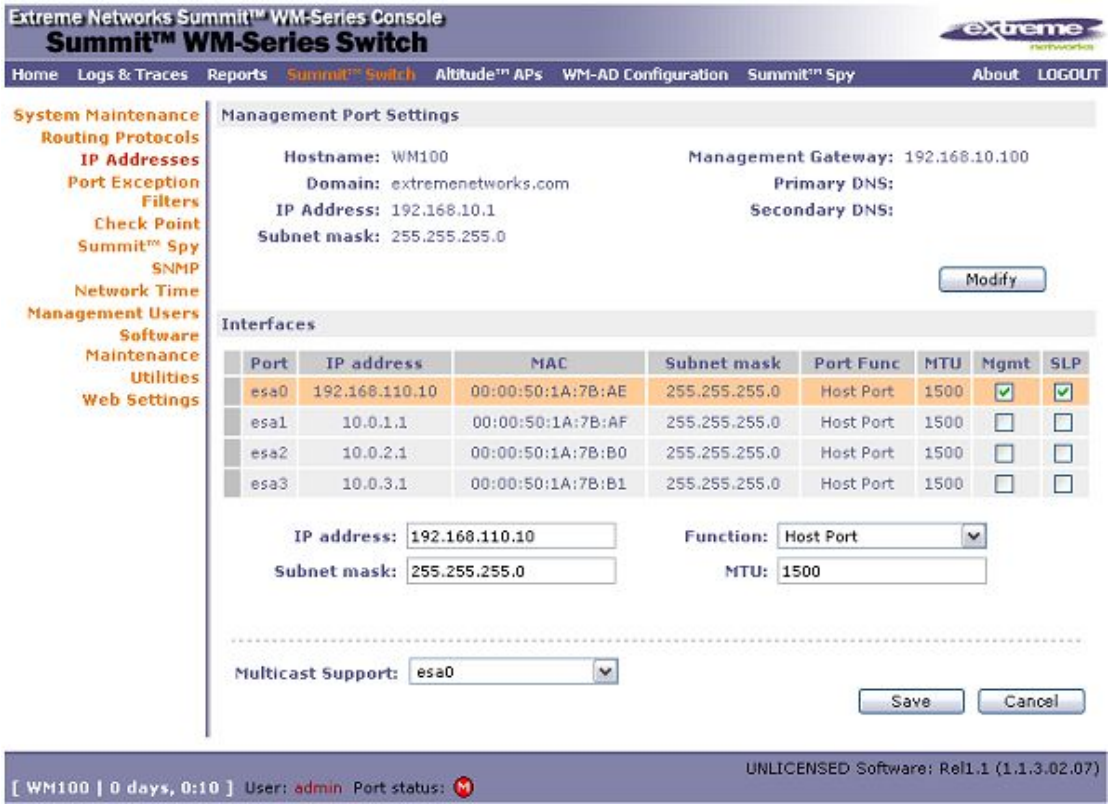

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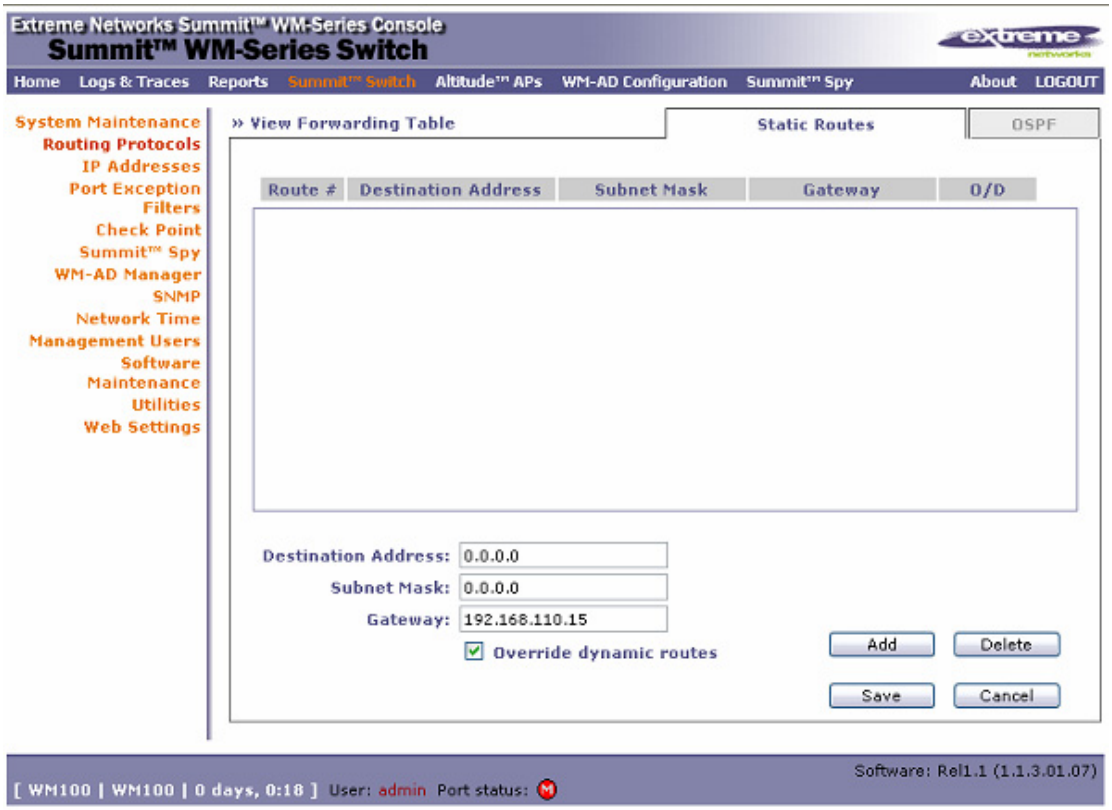
Assigning Routing Protocols to Summit WM Series Controller

1. Select **Routing Protocols** from the left-hand side of the **Summit™ Switch** screen.
2. Enter **0.0.0.0** for the **Destination Address** and **0.0.0.0** for the **Subnet Mask**. Add the appropriate address for the **Gateway**.

If dynamic routing (OSPF) is being used, then the default route should be set automatically. However, it is always recommended that you assign a temporary static route in dynamic environments to allow the device to operate immediately without having to wait for the initial updates. Be sure to clear the checkbox for **Override dynamic routes**. This will allow dynamic routes to be the default once they arrive.

3. Save the settings using the **Save** button.



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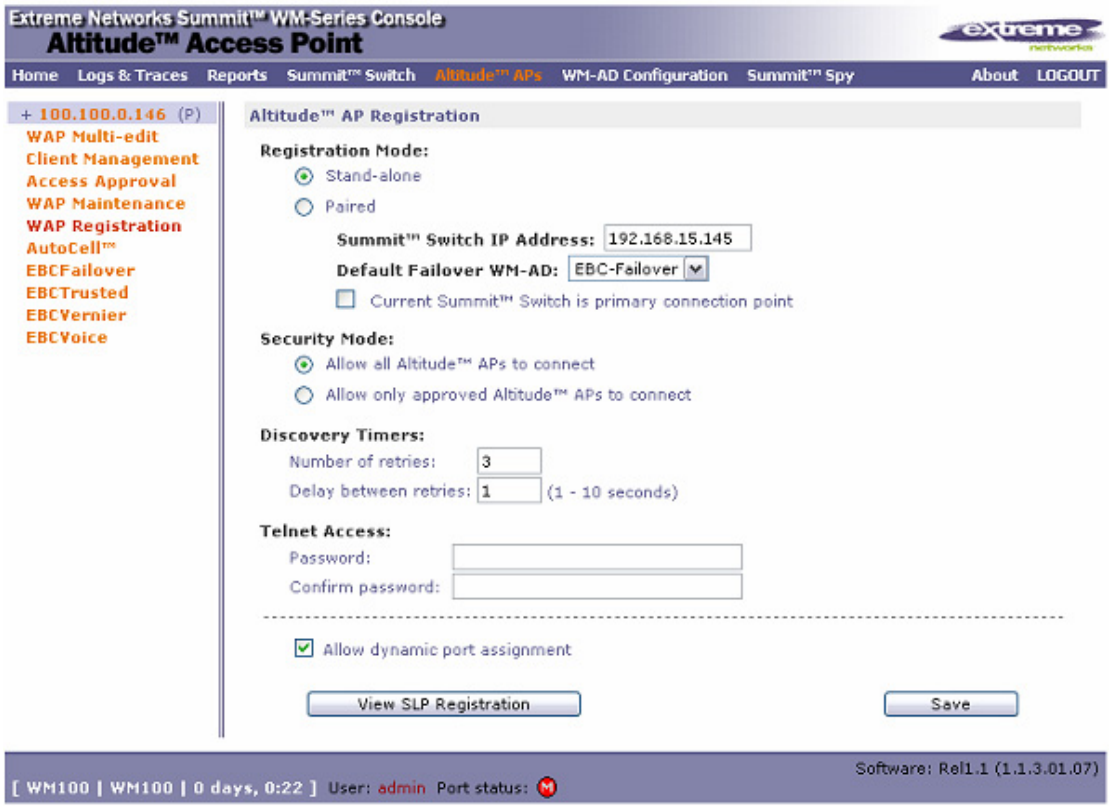
WAP Registration

1. Navigate to the **Altitude™ APs** tab and select **WAP Registration** on the left-hand side of the screen.
2. Enter all information for your APs (see screen shot below). Make sure the setting for **Security Mode** is selected to **Allow all Altitude™ APs to Connect**.

This setting allows new APs to be added to the system automatically. Once the addition of APs is complete it is recommended to switch this setting back to **Allow only approved Wireless APs to connect.**

3. Save the settings using the **Save** button.



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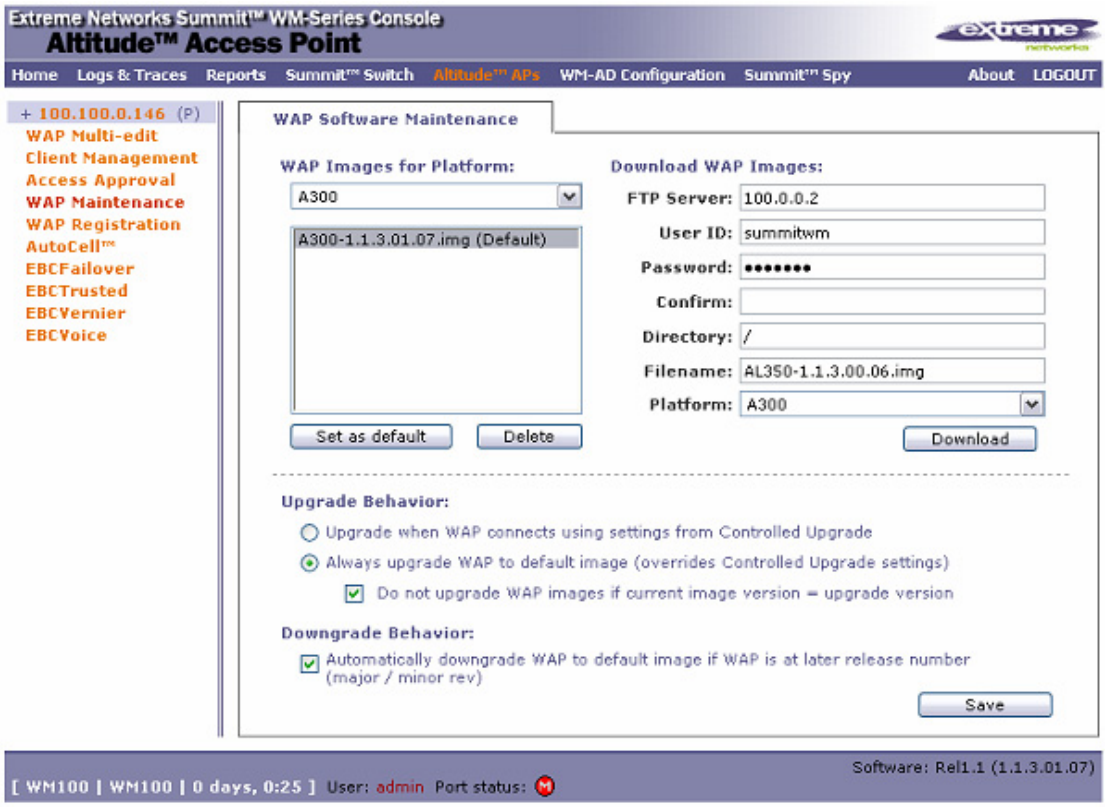
WAP Maintenance

1. Select **WAP Maintenance** on the left-hand side of the **Altitude™ APs** menu.
2. Select the proper image file in the **WAP Images** box and click **Set as default**.
3. Under Upgrade Behavior select **Upgrade when WAP connects using settings from Controlled Upgrade**. Check Upgrade Behavior, **Do not upgrade WAP images if current image version = upgrade version** and check Downgrade Behavior, **Automatically downgrade WAP to default image if WAP is at later release number (major/minor rev)**.
4. Save the settings using the **Save** button.



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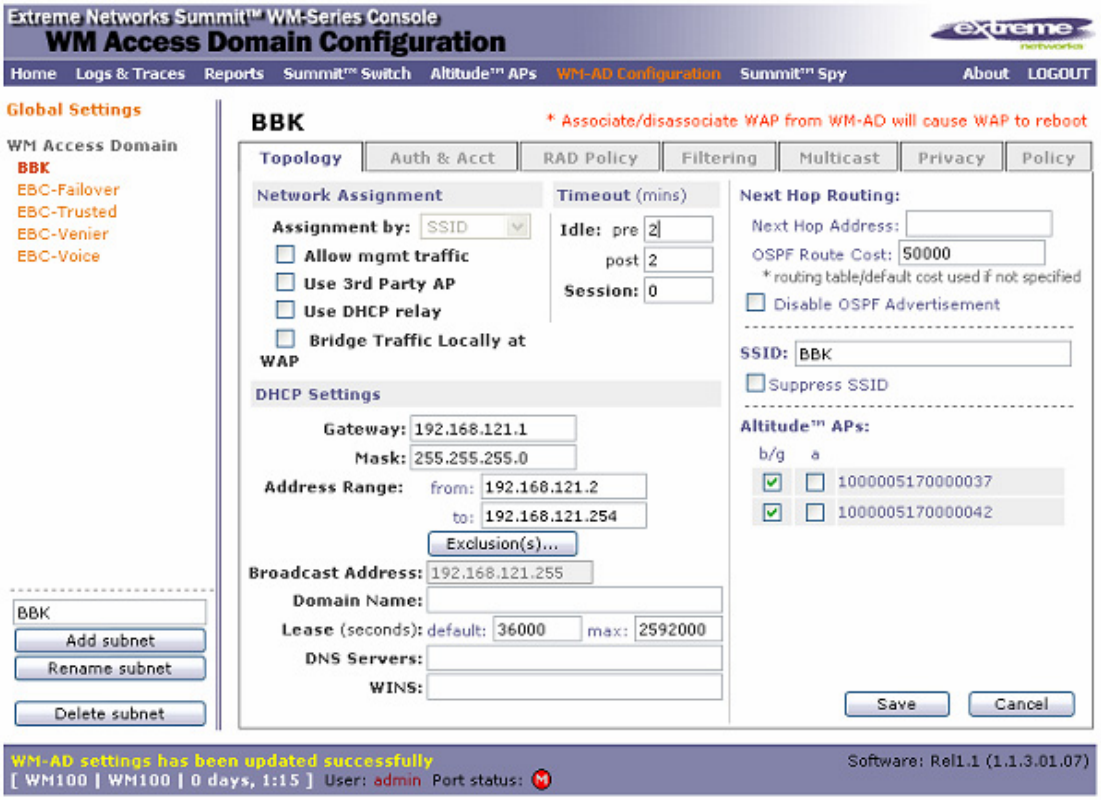
Setting up SSID, Security and QOS

1. Go to the **WM-AD Configuration** menu and select the **Topology** tab.
2. Assign a subnet for clients for a specific SSID.
3. Under **DHCP Settings**, enter the appropriate address for the **Gateway**. For **Mask** enter **255.255.255.0**. The address range should default to **192.168.121.2 – 192.168.121.254**. Change this if you want a limited range of addresses assigned to this subnet. No DNS Servers or WINS is required.
4. Set the **Timeout Idle pre** and **post** to **2**.
5. Under **Next Hop Routing**, set **the OSPF Route Cost** to **50000**.
6. Enter an **SSID** name.
7. Check **b/g** for all **Altitude™ APs**
8. Save the settings using the **Save** button.



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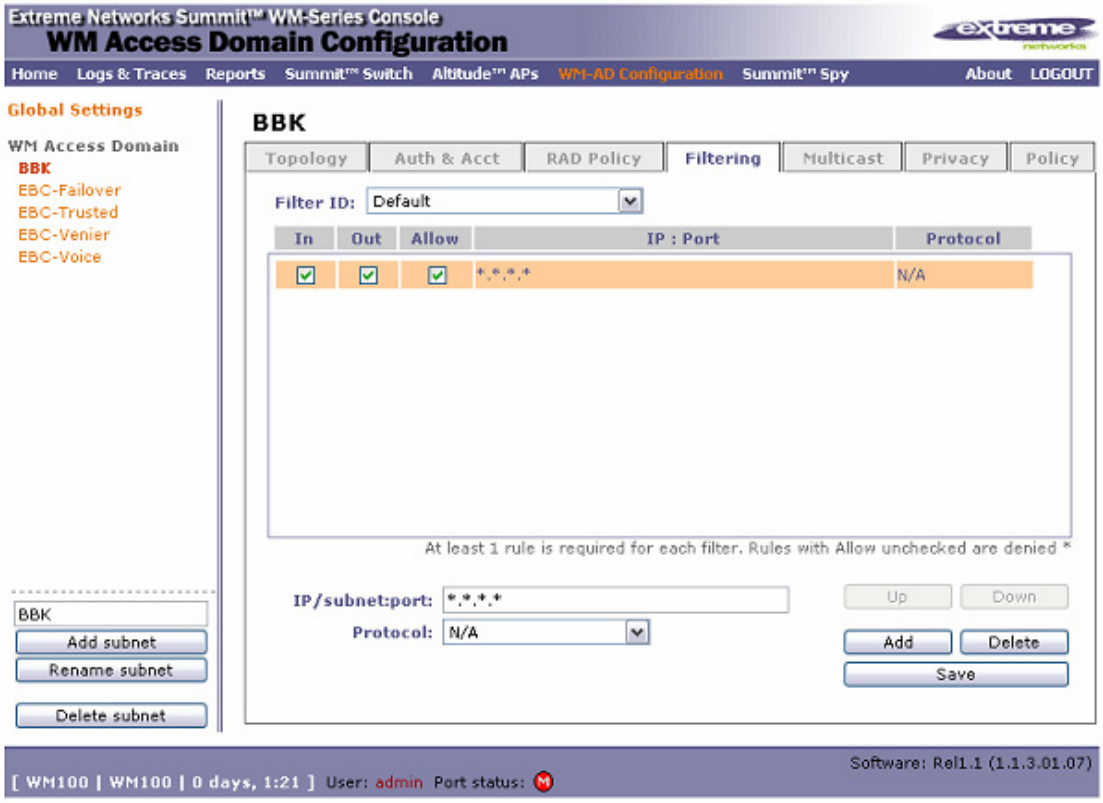
Filtering

1. From the **WM-AD Configuration** menu select the **Filtering** tab.
2. Select **Default** from the **Filter ID** drop down box. Select all 3 options, **In**, **Out** and **Allow**. Leave the **IP:Port** as ***.*.*.***.
3. Select **Non-Authenticated** in the **Filter ID** drop down box. Select all 3 options, **In**, **Out** and **Allow**. Leave the **IP:Port** as ***.*.*.***.
4. Save the settings using the **Save** button.

A more secure setup for this topology might be:

Allow 192.168.121.* UDP
Allow 192.168.110.* UDP
Allow 192.168.123.* UDP
Disallow *.*.*.* N/A T



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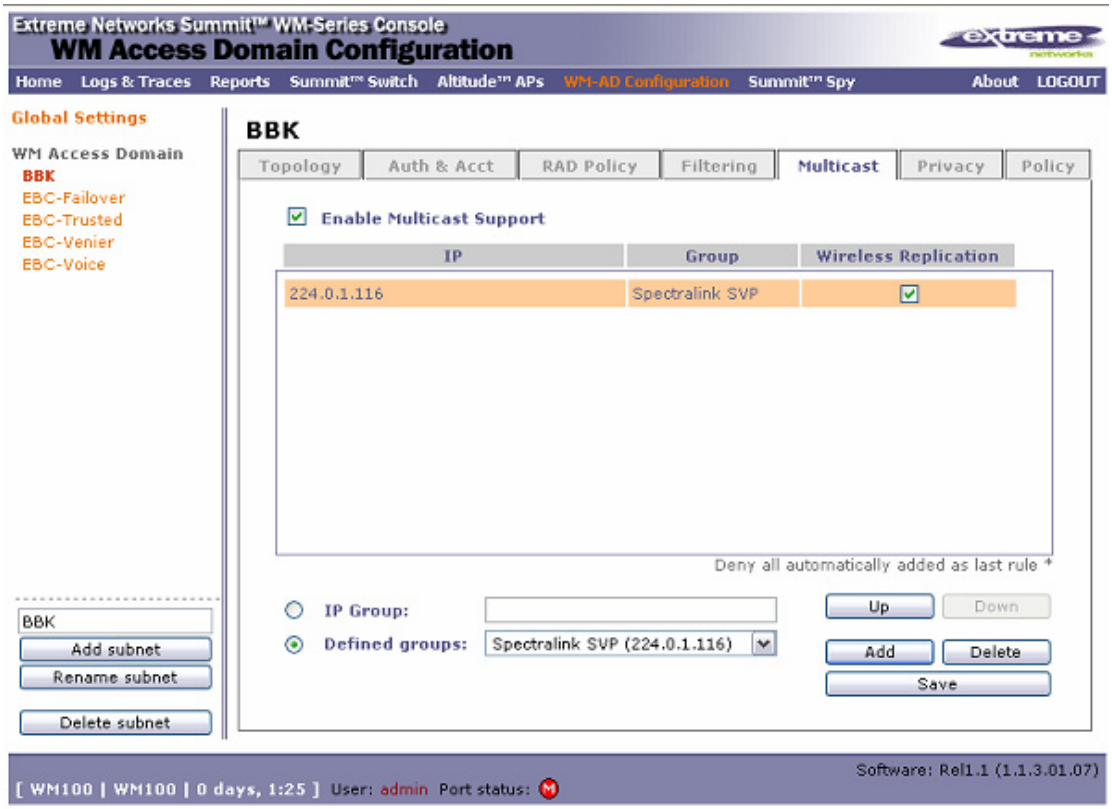
Multicast Configuration

1. From the **WM-AD Configuration** menu, select the **Multicast** tab.
2. Select the **Enable Multicast Support** check box.
3. In the **Defined Group** dropdown field, select or enter **Spectralink SVP (224.0.1.116)** and click the **Add** button.
4. Enable **Wireless Replication** for the multicast selection by selecting the checkbox for the entry.
5. Save the settings using the **Save** button.



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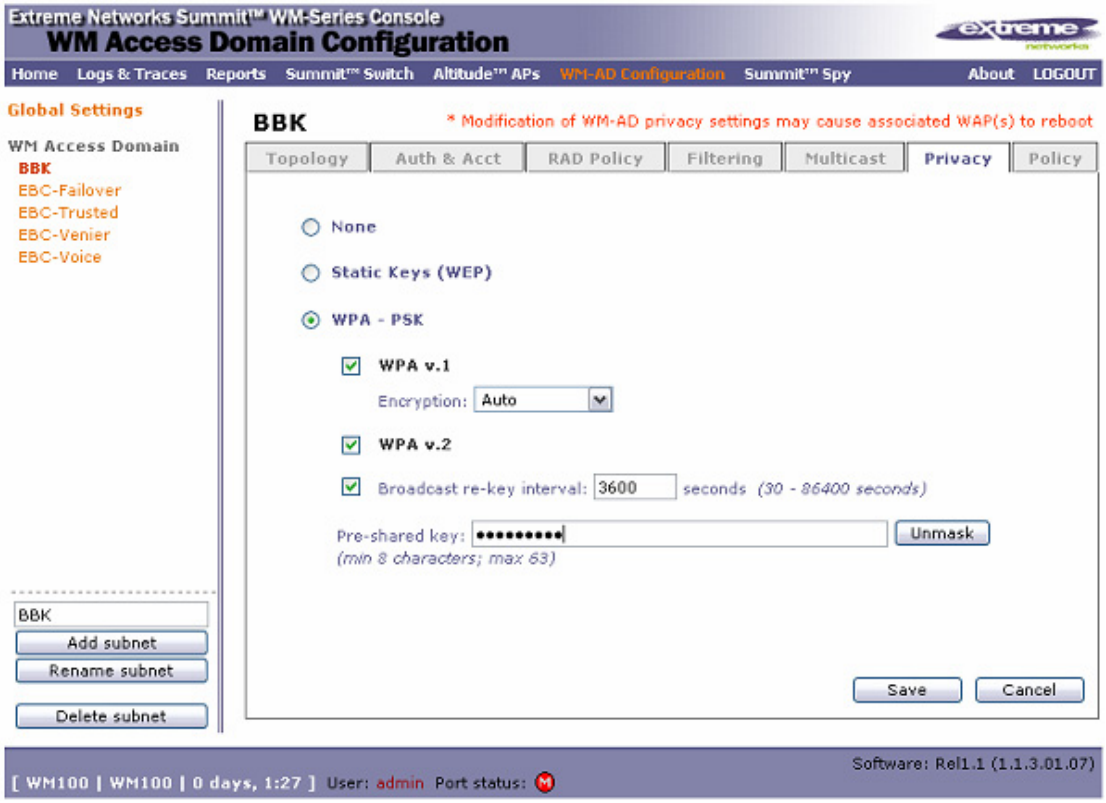
Security

1. From the **WM-AD Configuration** menu, select the **Privacy** tab.
2. For WPA2 AES-CCKM, select **WPA-PSK**, deselect **WPA v.1**, then select **WPA v.2**.
3. For WPA TKIP, select **WPA-PSK**, deselect **WPA v.2**, then select **WPA v.1**
4. Enter the appropriate pass phrase in the **Pre-shared key** field.
5. Save the settings using the **Save** button.

There is no hex key available at this time.



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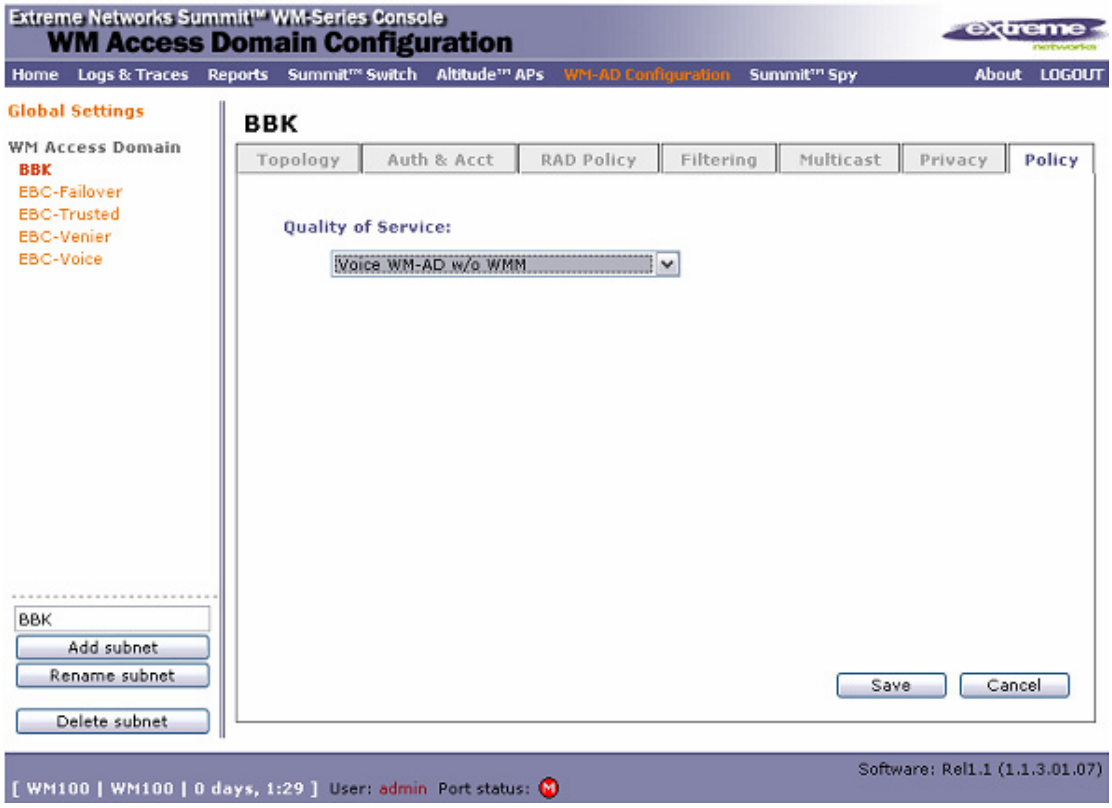
Quality of Service

1. From the **WM-AD Configuration** menu, select the **Policy** tab.
2. For the **Quality of Service** drop down box, select **Voice WM-AD w/o WMM**; this is required for SpectraLink handsets.
3. Save the settings using the **Save** button.



Setting up Other SSIDs

1. Repeat the above steps, starting at step 1.
2. Create a new SSID and DHCP pool as before. Each SSID has its own sub-net.
3. Use the same filtering settings as before.
4. Set up privacy as required.
5. If creating a sub-net for data, select **Best Effort** in the **Policy** page.

Make sure the proper SSID is selected on each page as it is being configured.

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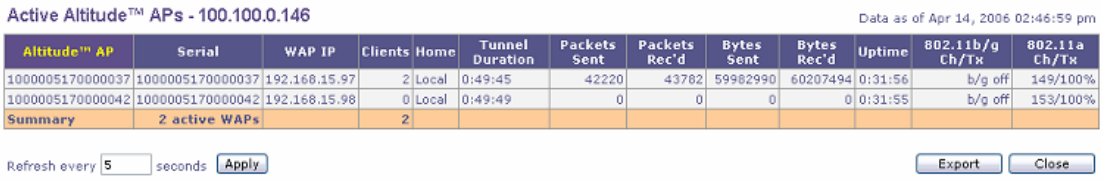
Connecting Access Points to the Controller

1. Navigate to the **Reports** menu.
2. Make sure the controller is configured to accept new APs (this is selected by default).
3. Physically connect the access points to the system one at a time. Once an AP is connected to the system, it will show up in the **Active Altitude™ APs** page of the **Reports** menu. Press F5 to refresh the screen.



Active Altitude™ APs - 100.100.0.146

Data as of Apr 14, 2006 02:46:59 pm

Altitude™ AP	Serial	WAP IP	Clients	Home	Tunnel Duration	Packets Sent	Packets Rec'd	Bytes Sent	Bytes Rec'd	Uptime	802.11b/g Ch/Tx	802.11a Ch/Tx
1000005170000037	1000005170000037	192.168.15.97	2	Local	0:49:45	42220	43782	59982990	60207494	0:31:56	b/g off	149/100%
1000005170000042	1000005170000042	192.168.15.98	0	Local	0:49:49	0	0	0	0	0:31:55	b/g off	153/100%
Summary	2 active WAPs		2									

Refresh every 5 seconds Apply Export Close

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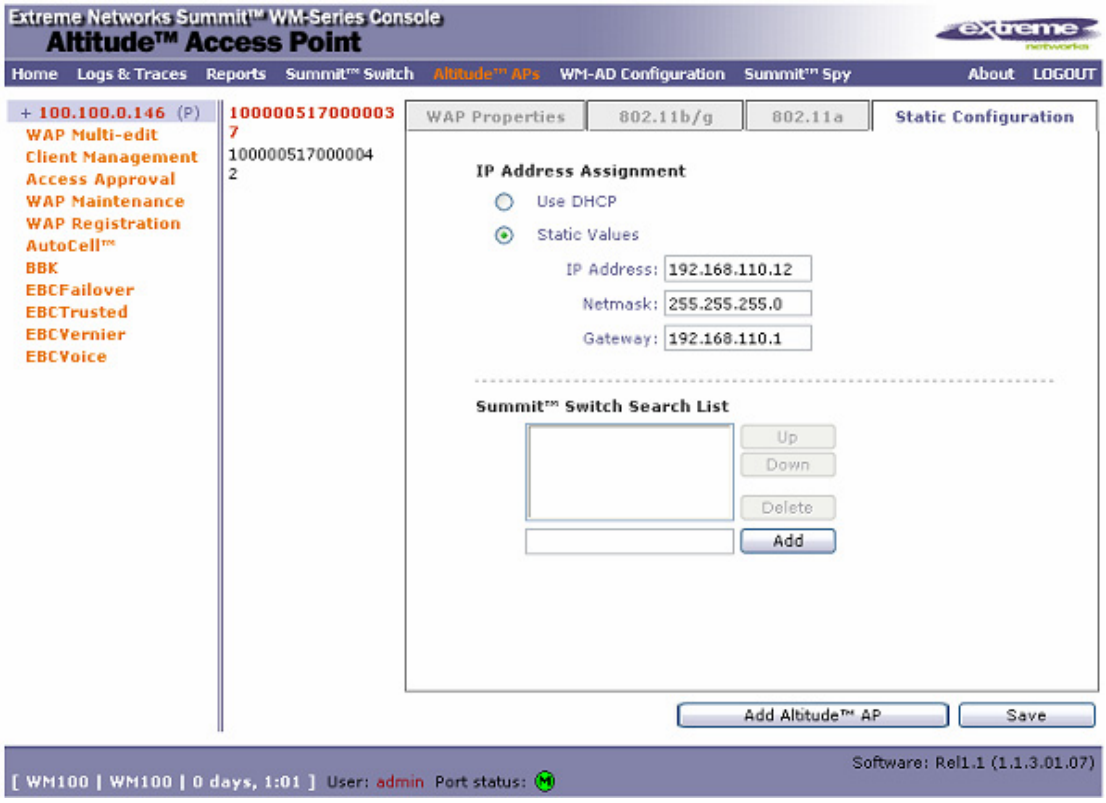
Wireless APs Address Assignment

1. After all the APs have been connected and discovered by the controller, go to the **Altitude™ APs** tab and select **Static Configuration**. Select an AP to configure. The AP's name will default to their MAC address.
2. Under **IP Address Assignment** select either **Use DHCP** or **Static Values**. If selecting **Static Values**, assign the proper values.
3. Under **Summit™ Switch Search List** add the IP address of the controller port.
4. Repeat steps 4 and 5 for each access point.
5. Save your settings using the **Save** button.



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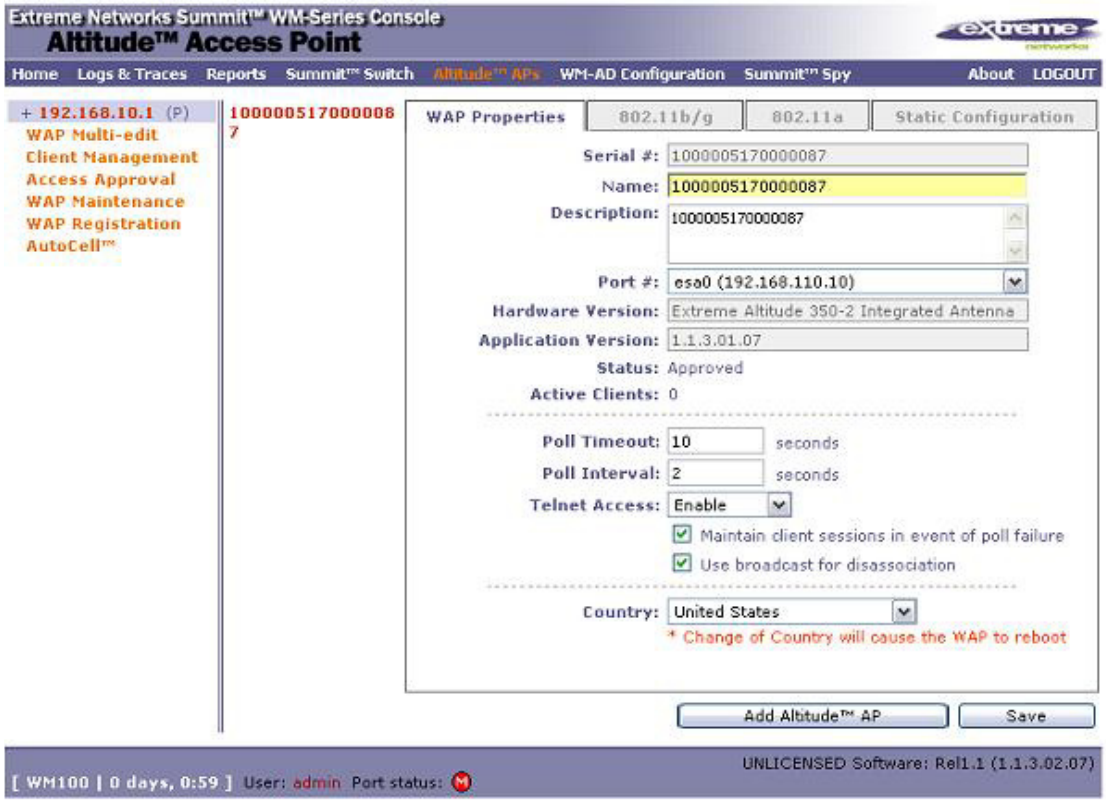
For each AP, follow the steps in the following sections.

AP Properties

1. In the **Altitude™ APs** menu, select **WAP Properties**. Select an AP to configure. Here you can assign a meaningful name to each AP.
2. Enable **Telnet Access**. This is useful for troubleshooting the setup and configuring security settings.



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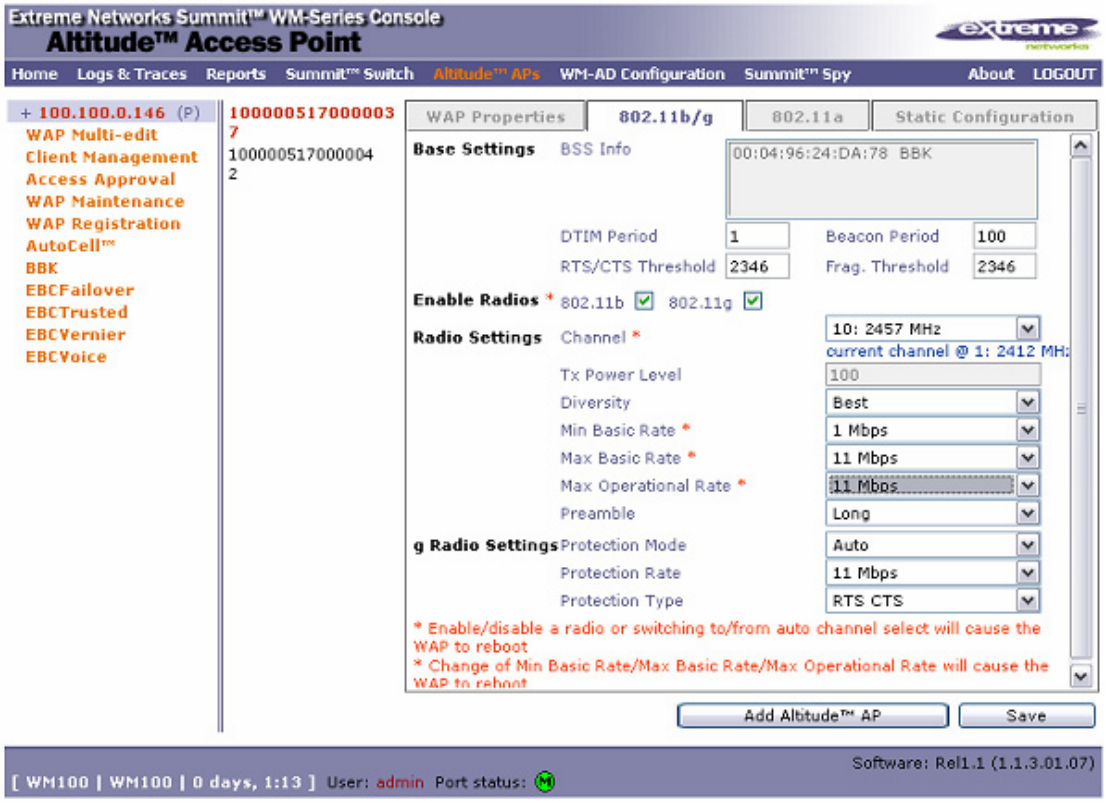
802.11b/g Settings

1. In the **Altitude™ APs** menu, select the **802.11 b/g** tab.
2. Select an AP to configure.
3. Under Basic Settings, set the **DTIM Period** to **3**, set the **Beacon Period** to **100**, set the **RTS/CTS Threshold** to **2346**, and set the **Frag. Threshold** to **2346**.
4. For **Enable Radios**, select **802.11b**.
5. Under **Radio Settings**, select the appropriate channel and **Tx Power Level**. (Note: DRM values will override this setting, if enabled). Set the **Diversity** to **Best**, the **Min Basic Rate** to **1 Mbps**, the **Max Basic** rate to **11Mbps**, the **Max Operational Rate** to **11Mbps**, and the **Preamble** to **Short** (note that the value **Long** works as well).
6. Save settings using the **Save** button.



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Enable the Radio

1. Go back to **WM-AD Configuration** menu, and select the **Topology** tab.
2. Enable each AP's b/g radio for each SSID.
3. Set **No. of Retries for Voice VO** to **adaptive (multi-rate)** and **No. of Retries for Turbo Voice TVO** to **2.**
4. Save all settings.

After the controller and access points are set up, the Management port is no longer required. The Controller can now be managed through the Host Port, or the esa0 port in this configuration. Open a browser and connect to https://<ip address>:5825.

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